CLAIMS

What is claimed is:

1. An implantable tissue-stimulating prosthesis comprising:

an elongate carrier member having a distal end, a proximal end, and at least one electrode positioned thereon;

at least one electrical conductor extending from one or more of the at least one electrode;

a lead extending from the carrier member and enclosing the at least one electrical conductor; and

a holding member constructed and arranged to radially extend outwardly from the surface of the carrier member to facilitate grasping of the holding member during implantation of the carrier member in a patient.

2. The prosthesis of claim 1, wherein the holding member is positioned adjacent to the proximal end of the carrier member.

3. The prosthesis of claim 1, wherein the holding member is an elongate member that extends longitudinally along a length of the carrier member.

4. The prosthesis of claim 1, wherein the carrier member has a width; and wherein the holding member extends outwardly from the carrier member surface for a distance defining a height of the holding member.

5. The prosthesis of claim 4, wherein the height of the holding member is approximately less that twice the carrier member width.

6. The prosthesis of claim 4, wherein the holding member has a width that tapers for a portion of its height away from the carrier member body.

7. The prosthesis of claim 1, wherein the holding member has a width that varies along its height to define vertical regions.

8. The prosthesis of claim 7, wherein the vertical regions comprise:

a first vertical region proximal the carrier member surface and having a substantially consistent width; and

a second vertical region distal the carrier member surface and having a width that tapers.

9. The prosthesis of claim 8, wherein the first vertical region is approximately between about 20% and 80% of the height of the holding member.

10. The prosthesis of claim 9, wherein the first vertical region is approximately 50% of the height of the holding member.

11. The prosthesis of claim 1, further comprising:

a support member that connects the holding member to the carrier member.

12. The prosthesis of claim 11, wherein the support member has a length approximately equal to or less than a maximum length of the holding member.

13. The prosthesis of claim 11, wherein the support member has a width that is less than a maximum width of the holding member.

14. The prosthesis of claim 1, wherein the holding member is removably joined to the carrier member.

15. The prosthesis of claim 1, wherein the holding member is rotatably mounted to the carrier member.

16. The prosthesis of claim 1, wherein the carrier member comprises one or more longitudinal and lateral slots on its surface, and wherein the holding member is mounted to the carrier member so as to be adjustable along the one or more longitudinal and lateral slots.

17. The prosthesis of claim 1, wherein the holding member further comprises:
an indicia that identifies the holding member on the carrier member.

18. The prosthesis of claim 17, wherein the indicia comprises tactility of the holding member.

19. The prosthesis of claim 17, wherein the indicia comprises a relative shape of the holding member and the carrier member.

20. The prosthesis of claim 17, wherein the indicia comprises a color of the holding member.

21. The prosthesis of claim 1, wherein the at least one electrode is disposed at the distal end of the carrier member, and wherein the at least one electrical conductor comprises one or more electrically-conducting wires extending from each said at least one electrode toward the proximal end of the carrier member.

22. The prosthesis of claim 1, wherein the at least one electrical conductor is formed from a biocompatible electrically conducting metal.

23. The prosthesis of claim 1, wherein the holding member is constructed and arranged to be manipulated by the fingers of a surgeon.

24. The prosthesis of claim 1, wherein the holding member is constructed and arranged to be manipulated by a surgical tool.

25. The prosthesis of claim 1, wherein the carrier member is constructed and arranged to be implanted using an insertion tool.

26. The prosthesis of claim 25, wherein the insertion tool comprises a slotted tube, and wherein the carrier member is adapted to be supported in the slotted tube such that the holding member extends through a slot of the slotted tube when the carrier member is placed within the tube.

27. The prosthesis of claim 1, wherein the tissue-stimulating prosthesis is a cochlear implant system.

28. The prosthesis of claim 1, wherein the carrier member is formed from a resiliently flexible material.

29. The prosthesis of claim 28, wherein the carrier member is preformed from a plastics material with memory.

30. The prosthesis of claim 1, wherein the tissue-stimulating prosthesis is a cochlear implant system, and wherein the carrier member is preformed to adopt a spirally curved configuration that matches the spiral nature of the scala tympani of the human cochlea, and wherein the carrier member is adapted to be straightened prior to implantation.

31. The prosthesis of claim 1, wherein the carrier member has a lumen extending longitudinally through the carrier member, and wherein the prosthesis further comprises:

a stiffening element adapted to extend through the lumen to bias the carrier member into at least a substantially straight configuration prior to and during initial insertion of the carrier member through a cochleostomy.

32. The prosthesis of claim 31, wherein the stiffening element is formed from a non-bioresorbable material.

33. A cochlear implant system comprising:

a stimulator unit;

an elongate carrier member having a distal end, a proximal end, and a multichannel electrode array positioned at the distal end thereof for implantation in the cochlear of a person;

a plurality of electrical conduction means electrically coupling each electrode of the electrode array to the stimulator unit; and

a holding member constructed and arranged to radially extend outwardly from the surface of the carrier member.

34. The system of claim 33, wherein the holding member is positioned adjacent to the proximal end of the carrier member.

35. The system of claim 33, wherein the holding member is an elongate member that extends longitudinally along a length of the carrier member.

36. The system of claim 33, wherein the holding member is formed integrally with the body of the carrier member.

37. The system of claim 33, wherein the holding member is removably joined to the carrier member.

38. The system of claim 33, wherein the holding member is rotatably mounted to the carrier member.

39. The system of claim 33, wherein the carrier member comprises one or more longitudinal and lateral slots on its surface, and wherein the holding member is mounted to the carrier member so as to be adjustable along the one or more longitudinal and lateral slots.

40. The system of claim 33, wherein the holding member has a width that varies along its height to define vertical regions.

41. The system of claim 40, wherein the vertical regions comprise:

a first vertical region proximal the carrier member surface and having a substantially consistent width; and

a second vertical region distal the carrier member surface and having a width that tapers.

42. The system of claim 33, wherein the holding member further comprises:

an indicia that identifies the holding member on the carrier member.

43. The system of claim 42, wherein the indicia comprises a color of the holding member.

44. The system of claim 42, wherein the indicia comprises tactility of the holding member.

45. The system of claim 33, wherein the electrical conduction means comprises a conductor formed from a biocompatible electrically conducting metal.

46. The system of claim 33, wherein the holding member is constructed and arranged to be manipulated by at least one of either the fingers of a surgeon and a surgical tool.

47. The system of claim 33, wherein the carrier member is constructed and arranged to be implanted using an insertion tool.

48. The system of claim 47, wherein the carrier member is preformed to adopt a spirally curved configuration that matches the spiral nature of the scala tympani of the human cochlea, and wherein the carrier member is adapted to be straightened prior to implantation.

49. The system of claim 48, wherein the carrier member has a lumen extending longitudinally through the carrier member, and wherein the prosthesis further comprises:

a stiffening element adapted to extend through the lumen to bias the carrier member into at least a substantially straight configuration prior to and during initial insertion of the carrier member through a cochleostomy.

50. A carrier member for use in a tissue-stimulating prosthesis comprising:

an elongate carrier member body having a distal end, a proximal end and a holding member radially extending outwardly from the surface of the carrier member body;

an electrode array disposed at the distal end of the carrier member body; and

means for communicating signals from a stimulator unit to the electrode array.

51. The carrier member of claim 50, wherein the holding member is positioned adjacent to the proximal end of the carrier member body.

52. The carrier member of claim 50, wherein the holding member is an elongate member that extends longitudinally along a length of the carrier member body.

53. The carrier member of claim 50, further comprises:

a support member that connects the holding member to the carrier member body.

54. The carrier member of claim 53, wherein the support member has a length approximately equal to or less than a maximum length of the holding member.

55. The carrier member of claim 50, wherein the holding member, support member and carrier member body are a single, unitary element.

56. The carrier member of claim 50, wherein the holding member is slidingly joined to the carrier member.

57. The carrier member of claim 50, wherein the holding member further comprises:

an indicia that identifies the holding member on the carrier member.

58. The carrier member of claim 50, wherein the holding member is constructed and arranged to be manipulated manually or with a surgical tool.

59. The carrier member of claim 50, wherein the carrier member is constructed and arranged to be implanted using an insertion tool.

60. The carrier member of claim 50, wherein the tissue-stimulating prosthesis is a cochlear implant system.

61. The carrier member of claim 50, wherein the carrier member is preformed from a plastics material with memory.

62. The carrier member of claim 61, wherein the carrier member is preformed to adopt a spirally curved configuration that matches the spiral nature of the scala tympani of the human cochlea, and wherein the carrier member is adapted to be straightened prior to implantation.

63. The carrier member of claim 62, wherein the carrier member has a lumen extending longitudinally through the carrier member, and wherein the prosthesis further comprises:

a stiffening element adapted to extend through the lumen to bias the carrier member into at least a substantially straight configuration prior to and during initial insertion of the carrier member through a cochleostomy.

64. A method of implanting a tissue-stimulating prosthesis in a desired location in a recipient comprising:

providing an elongate carrier member comprising a holding member extending from a surface thereof, electrodes disposed at a distal end thereof, and electrical conductors connected to the electrodes and extending through the carrier member from the distal to proximal end thereof;

forming a cochleostomy,

gripping the holding member; and

inserting a substantially straight carrier member through the cochleostomy and into the cochlea.

65. The method of claim 64, wherein the carrier member is preformed to adopt a spirally curved configuration that matches the spiral nature of the scala tympani of the human cochlea, and wherein the method further comprises:

inserting an elongate stiffening member into a lumen of the carrier member to straighten the carrier member.

66. The method of claim 64, further comprising:

once the electrode array is positioned at a desired location, permitting the carrier member to at least begin to adopt its curved configuration.

67. The method of claim 65, further comprising:

once the electrode array is positioned at a desired location, advancing the carrier member relatively forward off the stiffening member thereby permitting the carrier member to at least begin to adopt its curved configuration.

68. The prosthesis of claim 1, wherein the holding member has formed therein a grasping tool interface formed therein.

69. The prosthesis of claim 68, wherein the grasping tool interface comprises an aperture formed laterally through the holding member.

70. The system of claim 68, wherein the holding member has formed therein a grasping tool interface formed therein.

71. The system of claim 70, wherein the grasping tool interface comprises an aperture formed laterally through the holding member.

72. The carrier member of claim 50, wherein the holding member has formed therein a grasping tool interface formed therein.

73. The carrier member of claim 72, wherein the grasping tool interface comprises an aperture formed laterally through the holding member.